

## WHAT IS CLAIMED IS:

1. A method of providing missed call notification to a cellular telephone, comprising the steps of:
  - (a) receiving a telephone call, which is directed to a cellular telephone, at a central office;
  - (b) forwarding call setup information that is representative of the telephone call from the central office to a SS7 gateway and sending a location request communication to a home location register;
  - (c) receiving an access denied response with a reason code of inactive from the home location register;
  - (d) generating, in response to step (c), a message at the SS7 gateway including information identifying the origin of the telephone call;
  - (e) sending the message to a message center; and
  - (f) forwarding the message to the cellular telephone when the cellular telephone registers with the home location register, thereby providing notification of a missed call.

2. The method of claim 1, further comprising generating the message only when the cellular telephone is not registered with the home location register.

3. The method of claim 1, further comprising generating the message only when the cellular telephone is powered off.

4. The method of claim 1, wherein the message comprises at least one of a telephone number from which the telephone call originated, a name and a time of the telephone call.

5. The method of claim 1, further comprising filtering telephone calls for which notification is provided.

6. The method of claim 1, wherein the home location register is associated with a mobile switching center.

7. The method of claim 1, wherein the same business entity operates both the central office and a cellular telephone network.

8. The method of claim 1, wherein an incremental cost to a customer for receiving missed call notification in accordance with steps (a) - (f) is less than an incremental cost to the customer for voice mail service.

9. The method of claim 1, wherein the message generator is implemented in one of hardware, software or a combination thereof.

10. The method of claim 1, wherein the message is a short message service (SMS) message.

11. A method of providing missed call notification, comprising the steps of:

(a) receiving a telephone call from a first cellular telephone, which is directed to a second cellular telephone, at a mobile switching center;

(b) forwarding call setup information that is representative of the first cellular telephone call from the mobile switching center to a SS7 gateway and sending a location request communication to a home location register;

(c) receiving an access denied response with a reason code of inactive from the home location register;

(d) generating, in response to step (c), a message at the SS7 gateway including information identifying the origin of the telephone call;

(e) sending the message to a message center; and

(f) forwarding the message to the second cellular telephone when the second cellular telephone registers with the home location register, thereby providing notification of a missed call.

12. The method of claim 11, further comprising generating the message only when the second cellular telephone is not registered with the home location register.

13. The method of claim 11, further comprising generating the message only when the second cellular telephone is powered off.

14. The method of claim 11, wherein the message comprises at least one of a telephone number from which the telephone call originated, a name and a time of the telephone call.

15. The method of claim 11, further comprising filtering telephone calls for which notification is provided.

16. The method of claim 11, wherein the home location register is associated with a mobile switching center.

17. The method of claim 11, wherein an incremental cost to a customer for receiving missed call notification in accordance with steps (a) - (f) is less than an incremental cost to the customer for voice mail service.

18. The method of claim 11, wherein the message generator is implemented in one of hardware, software or a combination thereof.

19. The method of claim 11, wherein the message is a short message service (SMS) message.

20. A system for providing missed call notification to a cellular telephone, comprising:

(a) a central office operable to receive a telephone call, which is directed to a cellular telephone;

(b) a SS7 gateway in communication with a central office operable to receive call setup information that is representative of the telephone call and send a location request communication to a home location register based on the call set up information;

(c) means for receiving an access denied response with a reason code of inactive from the home location register;

(d) a message generator operable to generate, in response to the home location register, a message at the SS7 gateway including information identifying the origin of the telephone call;

(e) means for sending the message to a message center; and

(f) means for forwarding the message to the cellular telephone when the cellular telephone registers with the home location register, thereby providing notification of a missed call.

21. The system of claim 20, wherein the message is generated only when the cellular telephone is not registered with the home location register.

22. The system of claim 20, wherein the message is generated only when the cellular telephone is powered off.

23. The system of claim 20, wherein the message comprises at least one of a telephone number from which the telephone call originated, a name and a time of the telephone call.

24. The system of claim 20, further comprising means for filtering telephone calls for which notification is provided.

25. The system of claim 20, wherein the home location register is associated with a mobile switching center.

26. The system of claim 20, wherein the same business entity operates both the central office and a cellular telephone network.

27. The system of claim 20, wherein an incremental cost to a customer for receiving missed call notification via the system of claim 20 is less than an incremental cost to the customer for voice mail service.

28. The system of claim 20, wherein the message generator is implemented in one of hardware, software or a combination thereof.

29. The system of claim 20, wherein the message is a short message service (SMS) message.

30. A system for providing missed call notification, comprising:

(a) a mobile switching center operable to receive a telephone call from a first cellular telephone, which is directed to a second cellular telephone;

(b) means for forwarding call setup information that is representative of the first cellular telephone call from the mobile switching center to a SS7 gateway and sending a location request communication to a home location register;

(c) means for receiving an access denied response with a reason code of inactive from the home location register;

(d) a message generator operable to generate, in response to receipt of the access denied response, a message at the SS7 gateway including information identifying the origin of the telephone call;

(e) means for sending the message to a message center; and

(f) means for forwarding the message to the second cellular telephone when the second cellular telephone registers with the home location register, thereby providing notification of a missed call.

31. The system of claim 30, wherein the message is generated only when the cellular telephone is not registered with the home location register.

32. The system of claim 30, wherein the message is generated only when the cellular telephone is powered off.

33. The system of claim 30, wherein the message comprises at least one of a telephone number from which the telephone call originated, a name and a time of the telephone call.

34. The system of claim 30, further comprising means for filtering telephone calls for which notification is provided.

35. The system of claim 30, wherein the home location register is associated with a mobile switching center.

36. The system of claim 30, wherein the same business entity operates both the central office and a cellular telephone network.

37. The system of claim 30, wherein an incremental cost to a customer for receiving missed call notification via the system of claim 20 is less than an incremental cost to the customer for voice mail service.



38. The system of claim 30, wherein the message generator is implemented in one of hardware, software or a combination thereof.

39. The system of claim 30, wherein the message is a short message service (SMS) message.